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ABSTRACT

The relationships between Southern Negro dialect exposure, age, reading ability, and auditory discrimination were studied. The subjects were 112 students randomly selected from grades 2 and 4 from two elementary schools in Richmond and Martinez, California. The predominant speech pattern at one school was Southern Negro dialect; at the other school, Standard English. The Wepman Auditory Discrimination Test as recorded by a dialect speaker and a Standard English speaker was administered. The results indicated a significant relationship between auditory discrimination and age and between auditory discrimination and reading ability. The subjects who were exposed primarily to Standard English had significantly fewer errors in discriminating word pairs pronounced in Standard English as well as those pronounced in Southern Negro dialect. This superior performance by the Standard English sample was interpreted as suggesting that familiarity with the speech pattern context of the presentation was not a significant factor in phonemic auditory discrimination ability. Tables and references are given. (Author/DE)

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AUDITORY DISCRIMINATION, DIALECT AND READING ACHIEVEMENT

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Abstract

The relationship between Southern Negro dialect exposure, age, reading ability and auditory discrimination was studied. The Ss were 112 students randomly selected from grade two and four of two elementary schools. The predominant speech pattern at one school was Southern Negro dialect; at the other school Standard English. The Wepman Auditory Discrimination Test as recorded by a dialect speaker and a Standard English speaker was administered. The results confirmed a significant relationship between auditory discrimination ability and age; between auditory discrimination and reading ability. Ss exposed primarily to Standard English had significantly fewer errors in discriminating word pairs pronounced in Standard English as well as those pronounced in Southern Negro dialect. This superior performance by the Standard English sample is interpreted as suggesting that familiarity with the speech pattern context of the presentation is not a significant factor in phonemic auditory discrimination ability.

AUDITORY DISCRIMINATION AND DIALECT

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Auditory discrimination, defined as the ability to distinguish between individual speech sounds (phonemes), has long been recognized as a correlate of reading ability, and particulary of reading readiness (Carhart, 1947; Durrell and Murphy, 1953; Harrington and Durrell, 1955; Linehan, 1958). Research has also established that Standard English auditory discrimination ability is significantly related to socioeconomic status (Clark and Richards, 1966; M. Deutsch, 1963; Hendrix, 1968; Templin, 1957); to age (C. Deutsch, 1964; M. Deutsch, 1963); and to articulation (Gross, 1968; Wepman, 1960). A significant relationship was not found between auditory discrimination and IQ or sex (Hendrix, 1968; Wepman, 1960). Although Templin (1957) reported a significant relationship between auditory discrimination and IQ, she used nonsense syllables and a paired picture test as measures of auditory discrimination, rather than the Wepman Auditory Discrimination Test, which has been used in most studies.

Three theoretical positions regarding the causal relationship between some of those variables which are significantly related have been developed: (a) the cultural difference theory; (b) the differential perceptual capacity theory; (c) the articulation theory. The cultural difference theory, as stated by C. Deutsch (1964), asserts that the lower-class home is noisy with little directed and

sustained speech stimulation; since it is impossible to avoid the impingement of the physical properties of sounds, as one can with the visual mode, auditory stimulation is very susceptible to a "tuning-out" process, or a learned inattention. The resulting implication is that a child raised in a noisy environment, with little directed, sustained speech, might exhibit deficiencies in recognizing and discriminating speech sounds, due to his early learned inattention in the auditory mode. Thus, he could be expected to have difficulty with any skill which depends, at least in part, on auditory discrimination.

The differential perceptual capacity theory argues that differential ability in auditory discrimination is due to underlying differences in perceptual capacity rather than the extent to which that capacity is developed. Therefore, lower socioeconomic children, children with articulation defects, and children with low auditory discrimination ability are presumed likely to have less perceptual capacity in the auditory mode than their counterparts.

Finally, the articulation theory, as stated by Wepman (1960) asserts that poor auditory discrimination may be the causal factor in speech and reading difficulties; no initial causal factor is proposed for auditory discrimination difficulties.

Based on the research cited, an additional theoretical position seems quite plausible. It is important to note first that all but one of the studies cited (Gross, 1968) used Standard English as the criterion for adequate articulation and auditory discrimination. The theoretical position is as follows: (a) research has

established socioeconomic status, age, reading achievement and articulation as significantly related to Standard English auditory discrimination; (b) given that lower socioeconomic status subjects are more likely to be exposed to dialect during the preschool formative years for speech patterns, then (c) one might hypothesize that this exposure to dialect results in differential familiarity with Standard English; produces articulation differing from Standard English; and thus results in a decreased auditory discrimination ability when the words are presented in Standard English. The present study was an attempt to explore this theory by investigating the influence of dialect exposure on auditory discrimination.

Method

Hypotheses

Four hypotheses were investigated: (a) Ss from a neighborhood where dialect is predominant (D) will have fewer errors in discriminating word pairs pronounced by a dialect speaker than will Ss from a neighborhood where such dialect is essentially nonexistent (ND). (b) ND Ss will have fewer errors in discriminating word pairs pronounced in Standard English than will D Ss. (c) Ss with higher auditory discrimination scores will also have higher reading achievement scores. (d) Older Ss will have fewer errors on both recordings than younger Ss.

Subjects

The Ss were 112 students attending two elementary schools in Richmond and Martinez, California. Southern Negro dialect, as

described by Wise (1957) was the predominant speech pattern among the pupils at the Richmod school, while pupils at the Martinez school had only minimal exposure to this dialect. The socioeconomic status of pupils, as measured by mean educational level of parents, was comparable between schools. The racial composition of the sample was primarily Negro in the Richmond school and primarily Caucasian in the Martinex school. Twenty-eight Ss were randomly selected from grade two and 28 from grade four at each school. All Ss had been screened for hearing ability during the previous year.

Materials

The Wepman Auditory Discrimination Test was used to measure auditory discrimination ability. It consists of 40 word pairs, 10 identical and 30 differing only in a single phoneme. This test was tape-recorded in two forms: by a Standard English speaker, and by a Southern Negro dialect speaker, whose speech pattern was comparable to that predominant in the Richmond school. Total reading scores were gathered for the Stanford Achievement Test, administered the last month of grade one (for grade two pupils) and the last month of grade three (for grade four pupils).

Procedure

Prior to testing, hearing screening results were checked on all Ss, and Stanford Achievement Test scores were collected on those Ss where available. For testing, the Ss at each grade level in each school were randomly divided into two equal groups, one receiving the Standard English tape and one the dialect tape of

the Wepman Auditory Discrimination Test. Thus, the experimental design was fully crossed with 14 replications of each condition.

The testing was individual, with instructions and practice items presented directly by the Standard English-speaking tester, and the test word pairs presented on tape. As recommended in the test manual, auditory discrimination ability was determined on the basis of the differing word pairs. A S's score was the number of differing word pairs which he called "different", referred to as Y score.

Results

The mean auditory discrimination Y scores are presented in Table 1. Since comparability of the two tapes could not be assumed, and in order to facilitate post-hoc contrasts, a nested analysis of variance was performed; this is summarized in Table 2. Table 3 presents $\hat{\omega}^2$, or the percent of variance in auditory discrimination scores which is attributable to each of the significant effects.

Post-hoc contrasts were computed using Tukey's method, to determine the source of significance for the effect of area within tape. The Standard English speech exposure Ss received significantly higher ($p < .01$) scores than the dialect speech exposure Ss on the Standard English tape as well as on the dialect tape.

Since reading achievement scores were not available on all Ss, and since reading is theoretically the dependent variable in its relationship with auditory discrimination, a separate analysis of variance was run on these two variables. For this analysis, auditory

discrimination scores were split into thirds. The results are presented in Table 4. For the significant source, auditory discrimination score, $\hat{\omega}^2 = .097$. In order tc determine which of the auditory discrimination scores were significantly different, post-hoc contrasts were again computed, using Tukey's method for pairwise comparisons, and Scheffe's method for a complex contrast. The results indicated that Ss who received low auditory discrimination scores did significantly poorer on the reading achievement test than the combined group of Ss receiving auditory discrimination scores in the middle and upper third of the sample.

Discussion

In accord with previous studies, the results indicate a significant relationship between auditory discrimination and age, and between auditory discrimination and reading ability. In addition, Ss whose exposure was primarily to the Standard English speech pattern had significantly fewer errors in discriminating word pairs pronounced in Standard English than Ss whose primary speech pattern was Southern Negro dialect. The remaining hypothesis, however, was rejected; in fact, significance occurred in the opposite direction of that proposed. It was found that Ss from a school where the predominant speech pattern was Standard English had significantly fewer errors in discriminating word pairs pronounced by a Southern Negro dialect speaker than did Ss from a school where the predominant speech pattern was Southern Negro dialect.

In interpreting this last result, it is likely that the instrument as it was used was not sufficiently refined to tap the

necessary factors which may relate dialect and auditory discrimination. By using a dialect tape where the speaker pronounced the same words as the Standard English speaker, the main difference between the tapes was the speech pattern in which the necessary discrimination was embedded. For example, the same phonemic discrimination was necessary for "dim-din" but the phonetic transcriptions for Standard English and Southern Negro dialect (based on International Phonetic Alphabet) were /dɪm/ - /dɪn/ and /dɪʌm/ - /dɪʌn/, respectively. Thus, the tapes changed the context for discrimination but did not change the discriminations. The instrument might be further refined by including word pairs (a) which are the same in Standard English but different in Southern Negro dialect, and (b) which are the same in this dialect but different in Standard English. It is questionable whether any of the former exist; however, assuming that they do, children exposed primarily to Southern Negro dialect should make significantly fewer errors than children with Standard English speech patterns on word pairs in the former category, while children with minimal exposure to this dialect who experience primarily Standard English speech patterns should make significantly fewer errors on word pairs in the latter category. Gross (1967) has reported that the auditory discrimination for dialect sounds was significantly inferior to that for Standard English among grade four Negro pupils in urban depressed areas; however, no comparison was made between this group and one with minimal dialect exposure, which is what the above proposal suggests.

Implications of the reported study are necessarily tentative; however, it suggests that auditory discrimination is not context-controlled to any significant extent. Familiarity with the speech pattern context of the discrimination was not a significant factor in phonemic auditory discrimination ability. The possibility of other factors, such as differential familiarity with the discriminations, remains to be studied.

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TABLE 1

Mean Auditory Discrimination Y Scores

Tape	Dialect speech exposure area		Standard English speech exposure area	
	Grade 2	Grade 4	Grade 2	Grade 4
Dialect	18.71	20.29	20.07	21.21
Standard English	19.36	19.86	21.43	23.43

TABLE 2

Analysis of Auditory Discrimination Test Variance

Source	df	MS	F
Grade level (G)	1	75.57	12.51*
Tape (T)	1	8.04	1.33
Area within tape A(T)	2	102.04	16.89*
G X T	1	2.29	.38
G X A(T)	2	.36	.06
Residual	104	6.04	

*$p < .001$.

TABLE 3

Percent of Attributable Variance

Source	$\hat{\omega}^2$
Grade	.08
Area within tape	.22

TABLE 4

Analysis of Variance for Auditory Discrimination and Reading Achievement

Source	df	MS	F
Tape (T)	1	58.24	.06
Auditory discrimination score (S)	2	2296.02	3.39*
T X S	2	951.47	1.41
Residual	60	676.42	

*$p < .05$.